

Inductive Proximity Switches

Inductive proximity switches are used to monitor the current position of automation components. They are available from SCHUNK in the versions IN (sensor with 30 cm molded cable and cable connector) or INK (sensor with 2 m long feeder cable and litz wires for wiring).



Function description

With their oscillator coil, inductive proximity switches produce a high-frequency, alternating magnetic field. This field occurs on the active surface of the sensor. If a metal object enters the field, it draws energy from the magnetic field, thereby reducing the oscillation amplitude. This change is detected, and the sensor switches.

Your advantages and benefits

Mounting through bracket

for simple, fast assembly

Version with LED display

for checking the switching state directly at the sensor

Version with connector

for easy, rapid replacement of extension cable

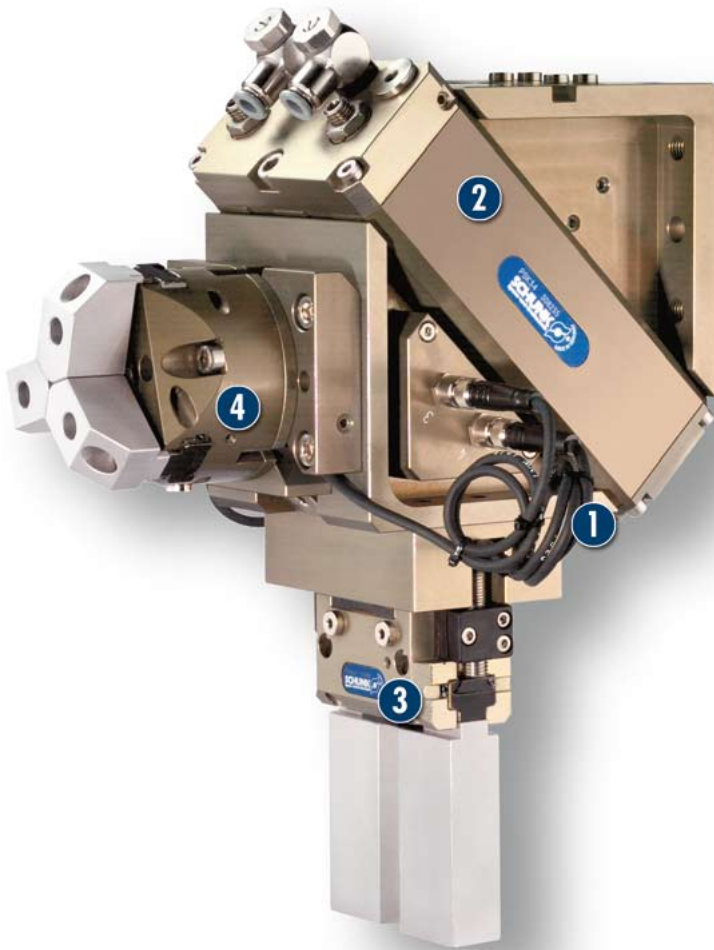
Ultra-flexible PUR cable

for a long life and resistance to many chemicals

Proximity switch can be installed flush

for minimal interfering contours in the application

Application example



Aera of application

For monitoring of gripping and rotary modules, linear modules and robot accessories. Inductive SCHUNK sensors detect metals without contact and are resistant to vibration, dust and humidity. Operability in case of contact with other media (coolant, acids, bases, etc.) is often given, however cannot be guaranteed by SCHUNK.

- 1** Plug-in IN Sensors
- 2** PSK Swivel Head
- 3** PGN 2-Finger Parallel Gripper with ABR finger blanks
- 4** PZN 3-Finger Centric Gripper with workpiece-specific gripper fingers

General information

Protection class according to DIN 40050

IP 67 in plugged condition for the use in clean or dusty environments, or in case of contact with water. Operability in case of contact with other media (coolant, acids, bases, etc.) is often given, however cannot be guaranteed by SCHUNK.

Voltage

10 - 30 V DC, residual ripple < 15%

Switching method

PNP switching

Warranty

24 months

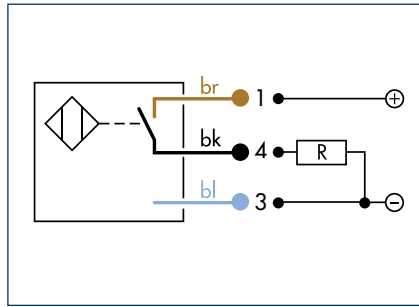
Notes

SCHUNK gripping, rotary and linear modules and robot accessory components must always be ordered from SCHUNK with the matching sensors, as these are ideally adapted to work together.

If major characteristics such as switching distance, switching function, hysteresis and voltage are largely the same, then proximity switches from other manufacturers may be used instead of inductive proximity switches (IN, INK) from SCHUNK.

However, if proximity switches from other manufacturers are used, SCHUNK cannot guarantee either their function or their functional reliability.

Wiring diagram closer

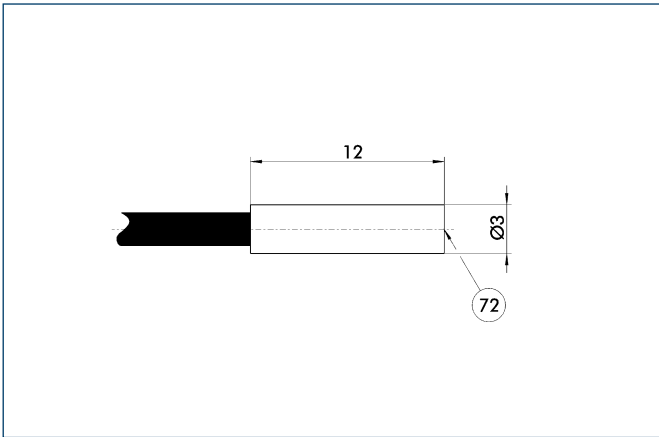


Technical data

Description	IN 3-S-M8-PNP
ID	0301466
Switching function	Closer
Switching distance [mm]	0.6
Switching hysteresis from the nominal switching distance	< 5%
Type of switching	PNP
Cable length [cm]	20
Cable connector/cable end	M8
Type of voltage	DC
Nominal voltage [V]	24
Min. voltage [V]	10
Max. voltage [V]	30
Power failure [V]	1.5
Max. switching current [A]	0.1
Min./max. ambient temperature [°C]	-25/75
Max. switching frequency [Hz]	1000
Typical switching time [s]	0
Tightness IP (sensor)	67
Tightness IP (sensor plugged)	67
LED display at the sensor	Yes
Cable diameter [mm]	2.5
Min. bending radius (dynamically) [mm]	25
Min. bending radius (statically) [mm]	12.5
Number of cores	3
Wire cross section [mm ²]	0.14

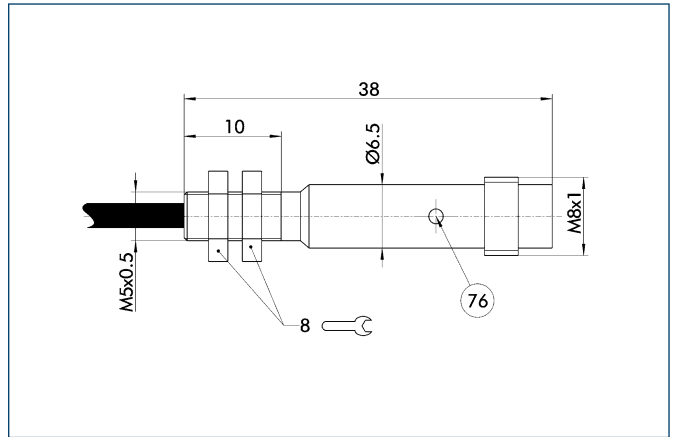
ⓘ Never separate the cable between the sensor and the plug connector.

IN 3 sensor



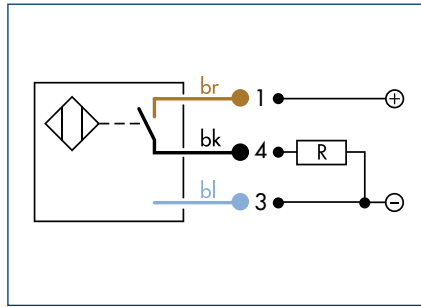
72 Active sensor surface

M8 connector



76 LED

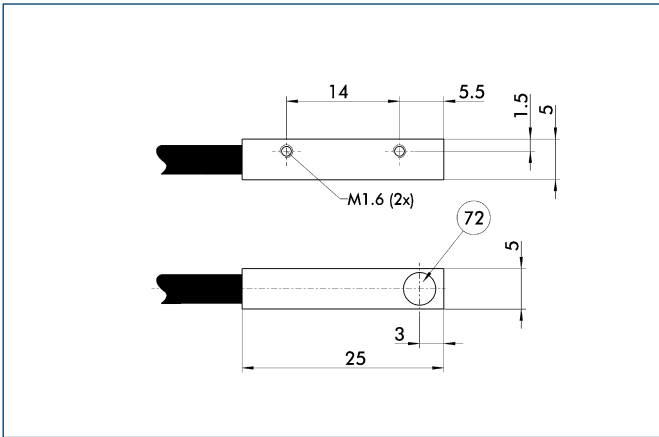
Wiring diagram closer



Technical data

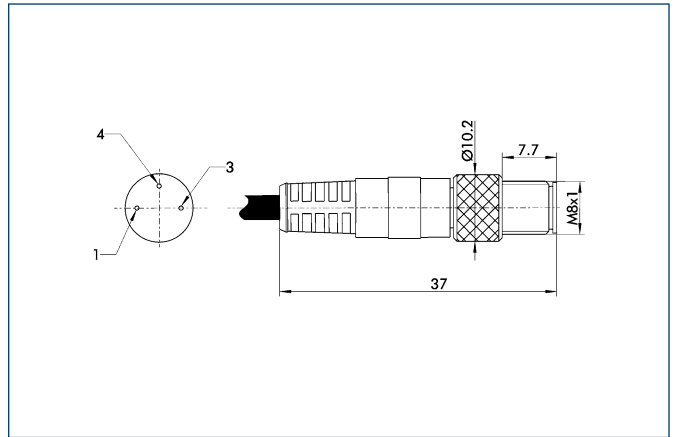
Description	IN 5-S-M8	IN 5-S-M12	IN K 5-S
ID	0301469	0301569	0301501
Switching function	Closer	Closer	Closer
Switching distance [mm]	1	1	1
Switching hysteresis from the nominal switching distance	< 15%	< 15%	< 15%
Type of switching	PNP	PNP	PNP
Cable length [cm]	30	30	200
Cable connector/cable end	M8	M12	open wires
Type of voltage	DC	DC	DC
Nominal voltage [V]	24	24	24
Min. voltage [V]	10	10	10
Max. voltage [V]	30	30	30
Power failure [V]	1.5	1.5	1.5
Max. switching current [A]	0.2	0.2	0.2
Min./max. ambient temperature [°C]	-25/70	-25/70	-25/70
Max. switching frequency [Hz]	1000	1000	1000
Tightness IP (sensor)	67	67	67
Tightness IP (sensor plugged)	67	67	67
LED display at the sensor	No	No	No
Cable diameter [mm]	3.5	3.5	3.5
Min. bending radius (dynamically) [mm]	35	35	35
Min. bending radius (statically) [mm]	17.5	17.5	17.5
Number of cores	3	3	3
Wire cross section [mm ²]	0.14	0.14	0.14

IN 5-S sensor

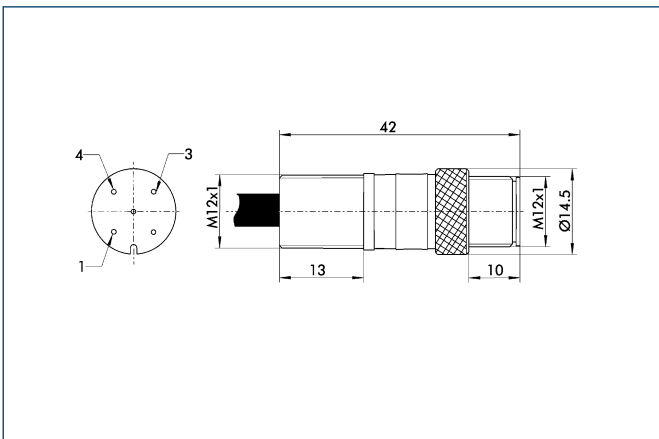


72 Active sensor surface

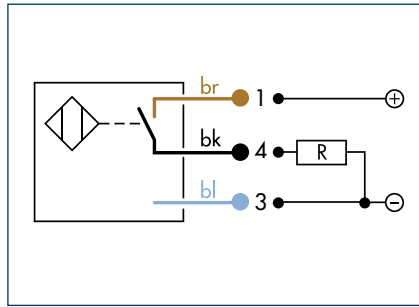
M8 connector



M12 connector



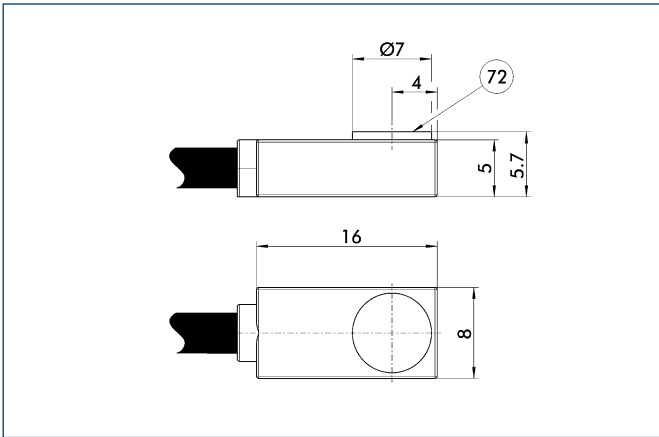
Wiring diagram closer



Technical data

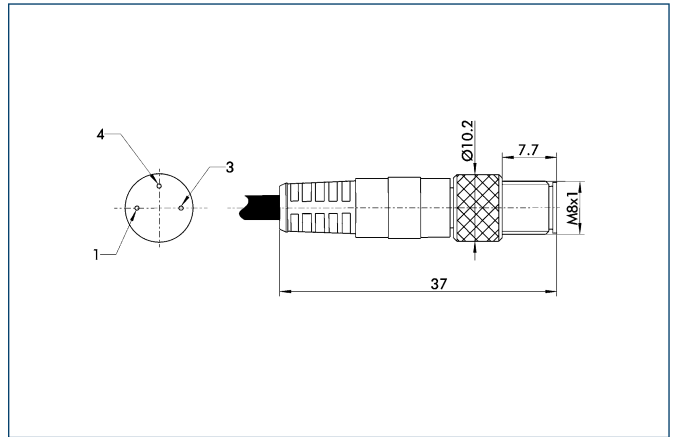
Description	IN 8-S-M8	IN 8-S-M12	INK 8-S
ID	0301481	0301581	9700052
Switching function	Closer	Closer	Closer
Switching distance [mm]	0.8	0.8	0.8
Switching hysteresis from the nominal switching distance	< 15%	< 15%	< 15%
Type of switching	PNP	PNP	PNP
Cable length [cm]	30	30	200
Cable connector/cable end	M8	M12	open wires
Type of voltage	DC	DC	DC
Nominal voltage [V]	24	24	24
Min. voltage [V]	10	10	10
Max. voltage [V]	30	30	30
Power failure [V]	1.5	1.5	1.5
Max. switching current [A]	0.2	0.2	0.2
Min./max. ambient temperature [°C]	-25/70	-25/70	-25/70
Max. switching frequency [Hz]	1000	1000	1000
Tightness IP (sensor)	67	67	67
Tightness IP (sensor plugged)	67	67	67
LED display at the sensor	No	No	No
Cable diameter [mm]	3.5	3.5	3.5
Min. bending radius (dynamically) [mm]	35	35	35
Min. bending radius (statically) [mm]	17.5	17.5	17.5
Number of cores	3	3	3
Wire cross section [mm ²]	0.14	0.14	0.14

IN 8-S sensor

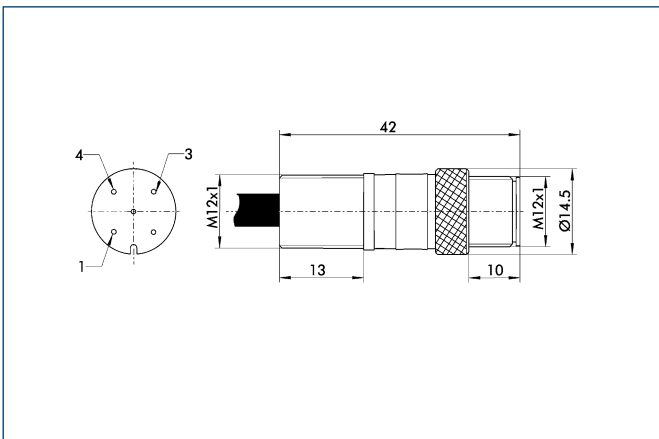


72 Active sensor surface

M8 connector

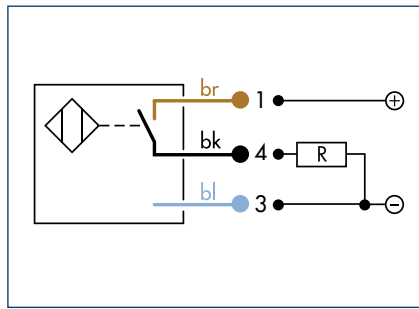


M12 connector

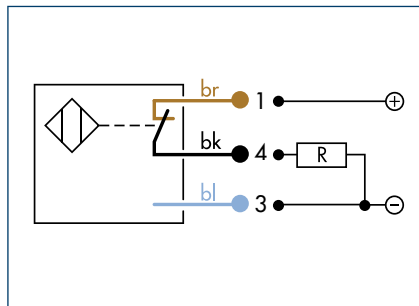




Wiring diagram closer



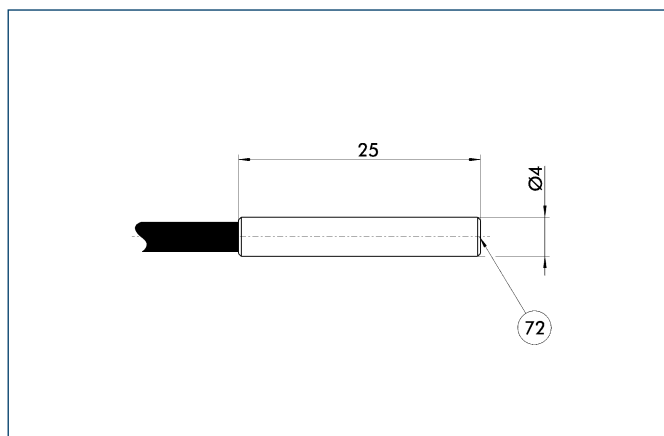
Wiring diagram opener



Technical data

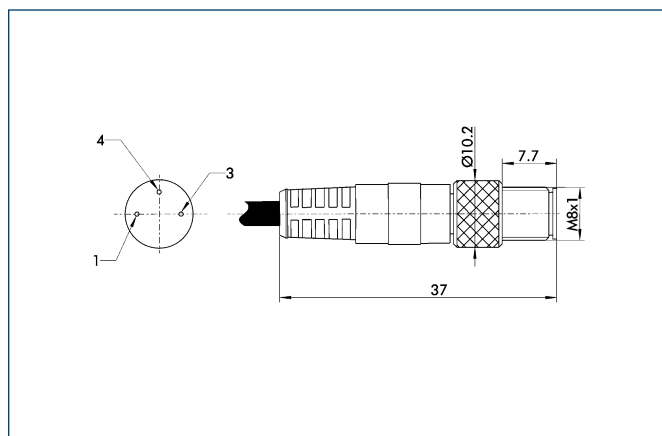
Description	IN 40-S-M8	IN 40-S-M12	INK 40-S	IN 40-O-M8	IN 40-O-M12	INK 40-O	IN 40-S-M5-PNP	IN 40-S-M5-NPN
ID	0301474	0301574	0301555	0301484	0301584	0301556	0301491	0301492
Switching function	Closer	Closer	Closer	Opener	Opener	Opener	Closer	Closer
Switching distance [mm]	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Switching hysteresis from the nominal switching distance	< 15%	< 15%	< 15%	< 15%	< 15%	< 15%	< 15%	< 15%
Type of switching	PNP	PNP	PNP	PNP	PNP	PNP	PNP	NPN
Cable length [cm]	30	30	200	30	30	200	30	30
Cable connector/cable end	M8	M12	open wires	M8	M12	open wires	M5	M5
Type of voltage	DC	DC	DC	DC	DC	DC	DC	DC
Nominal voltage [V]	24	24	24	24	24	24	24	24
Min. voltage [V]	10	10	10	10	10	10	10	10
Max. voltage [V]	30	30	30	30	30	30	30	30
Power failure [V]	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Max. switching current [A]	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Min./max. ambient temperature [°C]	-25/70	-25/70	-25/70	-25/70	-25/70	-25/70	-25/70	-25/70
Max. switching frequency [Hz]	1000	1000	1000	1000	1000	1000	1000	1000
Tightness IP (sensor)	67	67	67	67	67	67	67	67
Tightness IP (sensor plugged)	67	67	67	67	67	67	67	67
LED display at the sensor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cable diameter [mm]	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Min. bending radius (dynamically) [mm]	35	35	35	35	35	35	35	35
Min. bending radius (statically) [mm]	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
Number of cores	3	3	3	3	3	3	3	3
Wire cross section [mm ²]	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14

IN 40 sensor

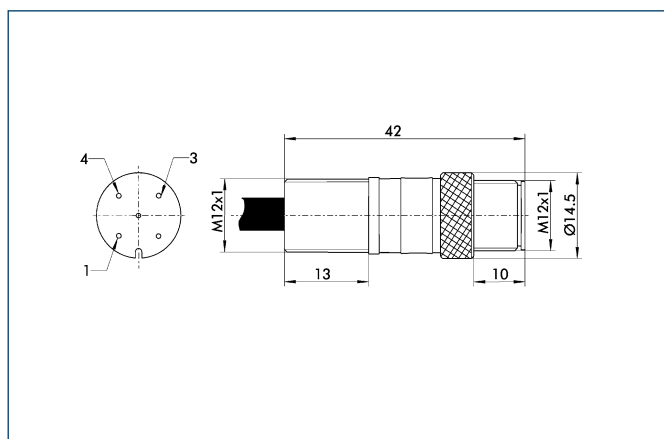


72 Active sensor surface

M8 connector

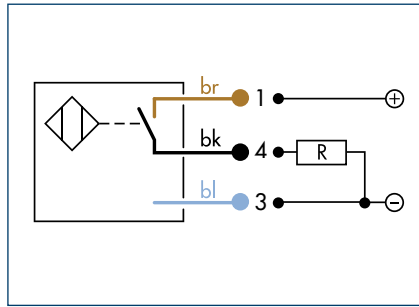


M12 connector

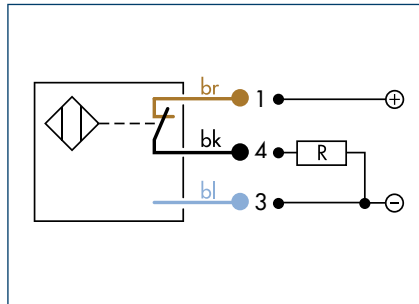




Wiring diagram closer



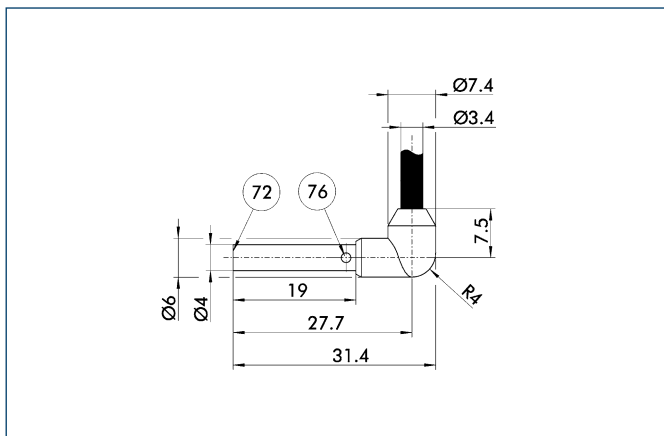
Wiring diagram opener



Technical data

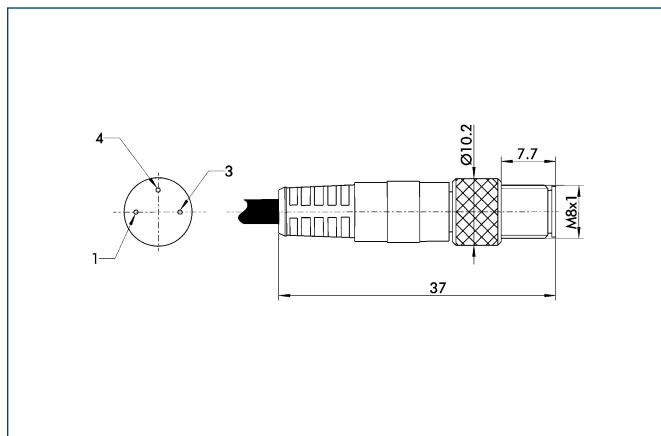
Description	IN 40-S-M12-SA	IN 40-S-M8-SA	INK 40-S-SA
ID	0301577	0301473	0301565
Switching function	Closer	Closer	Closer
Switching distance [mm]	0.8	0.8	0.8
Switching hysteresis from the nominal switching distance	< 15%	< 15%	< 15%
Type of switching	PNP	PNP	PNP
Cable length [cm]	30	30	200
Cable connector/cable end	M12	M8	open wires
Type of voltage	DC	DC	DC
Nominal voltage [V]	24	24	24
Min. voltage [V]	10	10	10
Max. voltage [V]	30	30	30
Power failure [V]	1.5	1.5	1.5
Max. switching current [A]	0.2	0.2	0.2
Min./max. ambient temperature [°C]	-25/70	-25/70	-25/70
Max. switching frequency [Hz]	1000	1000	1000
Tightness IP (sensor)	67	67	67
Tightness IP (sensor plugged)	67	67	67
LED display at the sensor	Yes	Yes	Yes
Cable diameter [mm]	3.5	3.5	3.5
Min. bending radius (dynamically) [mm]	35	35	35
Min. bending radius (statically) [mm]	17.5	17.5	17.5
Number of cores	3	3	3
Wire cross section [mm ²]	0.14	0.14	0.14

IN 40-SA sensor

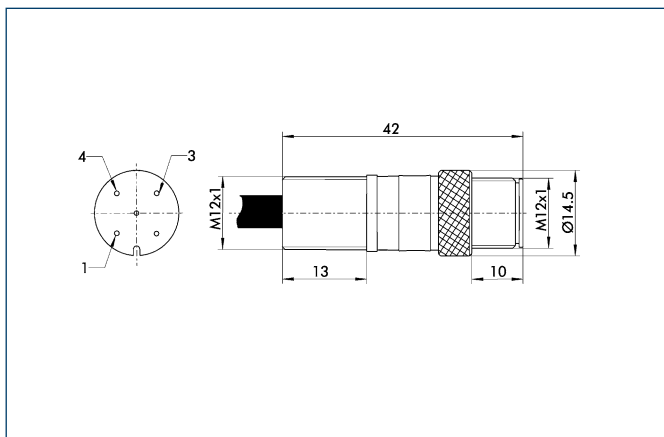


- 72 Active sensor surface
- 76 LED

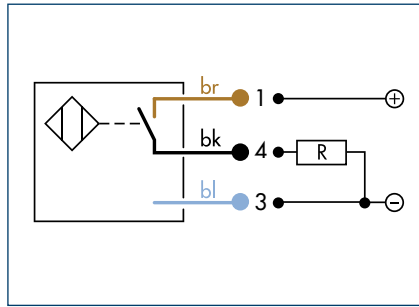
M8 connector



M12 connector



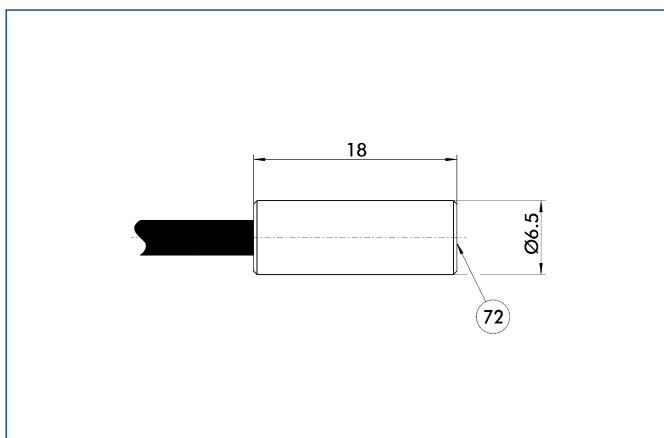
Wiring diagram closer



Technical data

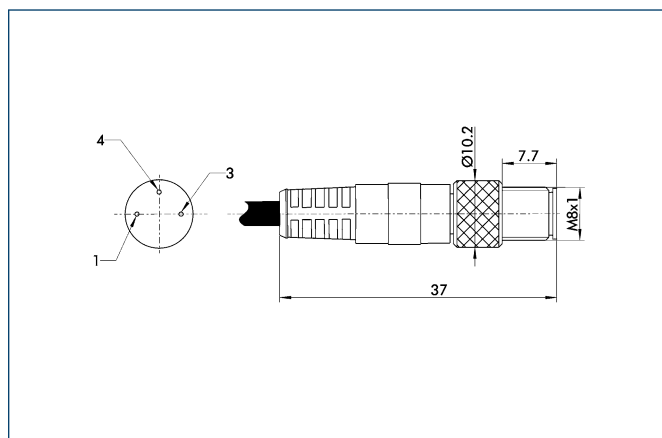
Description	IN 60-S-M8	IN 60-S-M12	INK 60-S
ID	0301485	0301585	0301553
Switching function	Closer	Closer	Closer
Switching distance [mm]	1.5	1.5	1.5
Switching hysteresis from the nominal switching distance	< 15%	< 15%	< 15%
Type of switching	PNP	PNP	PNP
Cable length [cm]	30	30	200
Cable connector/cable end	M8	M12	open wires
Type of voltage	DC	DC	DC
Nominal voltage [V]	24	24	24
Min. voltage [V]	10	10	10
Max. voltage [V]	30	30	30
Power failure [V]	1.5	1.5	1.5
Max. switching current [A]	0.2	0.2	0.2
Min./max. ambient temperature [°C]	-25/70	-25/70	-25/70
Max. switching frequency [Hz]	1000	1000	1000
Tightness IP (sensor)	67	67	67
Tightness IP (sensor plugged)	67	67	67
LED display at the sensor	No	No	No
Cable diameter [mm]	3.5	3.5	3.5
Min. bending radius (dynamically) [mm]	35	35	35
Min. bending radius (statically) [mm]	17.5	17.5	17.5
Number of cores	3	3	3
Wire cross section [mm ²]	0.14	0.14	0.14

IN 60-S sensor

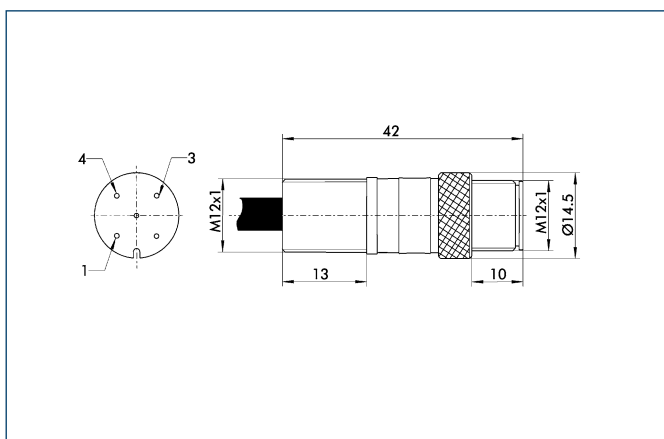


72 Active sensor surface

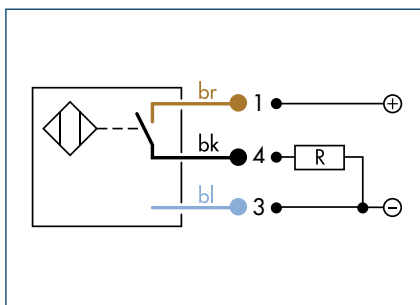
M8 connector



M12 connector



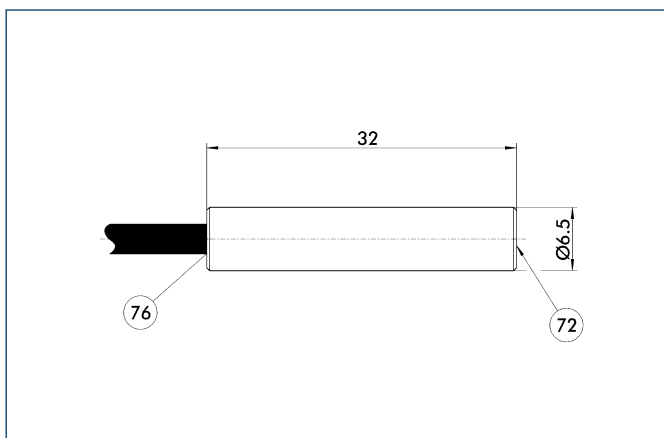
Wiring diagram closer



Technical data

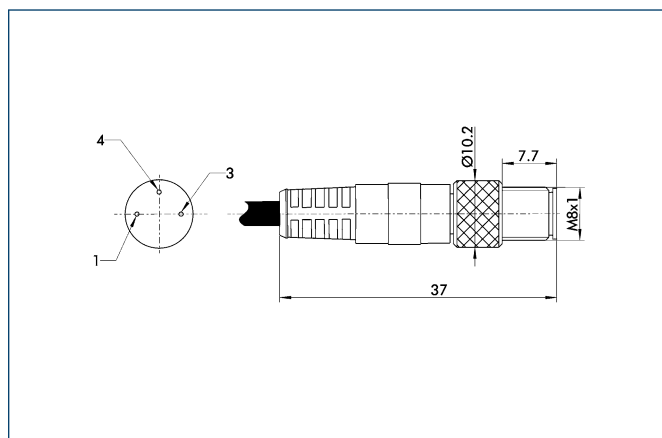
Description	IN 65-S-M8	IN 65-S-M12	INK 65-S
ID	0301476	0301576	0301554
Switching function	Closer	Closer	Closer
Switching distance [mm]	1.5	1.5	1.5
Switching hysteresis from the nominal switching distance	< 15%	< 15%	< 15%
Type of switching	PNP	PNP	PNP
Cable length [cm]	30	30	200
Cable connector/cable end	M8	M12	open wires
Type of voltage	DC	DC	DC
Nominal voltage [V]	24	24	24
Min. voltage [V]	10	10	10
Max. voltage [V]	30	30	30
Power failure [V]	1.5	1.5	1.5
Max. switching current [A]	0.2	0.2	0.2
Min./max. ambient temperature [°C]	-25/70	-25/70	-25/70
Max. switching frequency [Hz]	1000	1000	1000
Tightness IP (sensor)	67	67	67
Tightness IP (sensor plugged)	67	67	67
LED display at the sensor	Yes	Yes	No
Cable diameter [mm]	3.5	3.5	3.5
Min. bending radius (dynamically) [mm]	35	35	35
Min. bending radius (statically) [mm]	17.5	17.5	17.5
Number of cores	3	3	3
Wire cross section [mm ²]	0.14	0.14	0.14

IN 65-S sensor

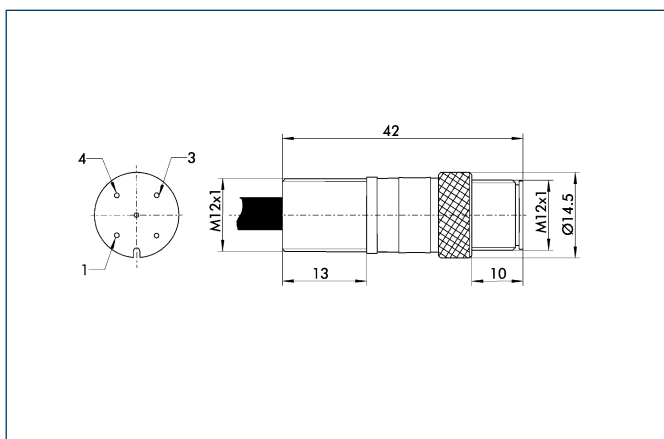


- 72 Active sensor surface
- 76 LED

M8 connector

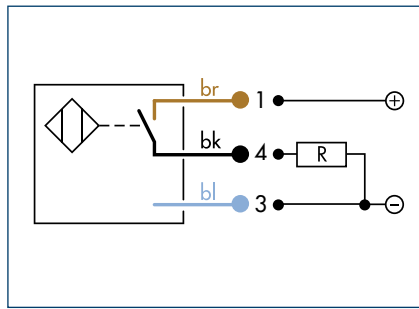


M12 connector

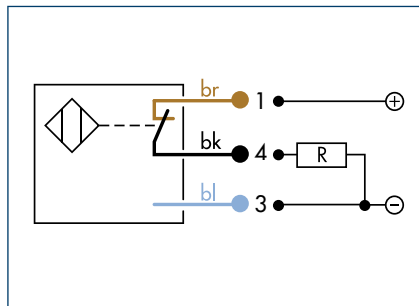




Wiring diagram closer



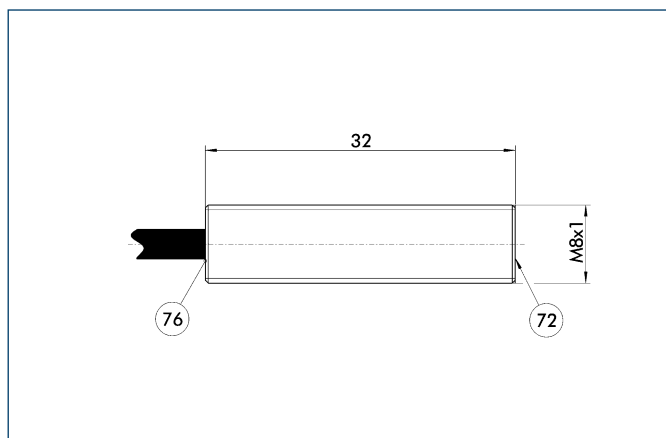
Wiring diagram opener



Technical data

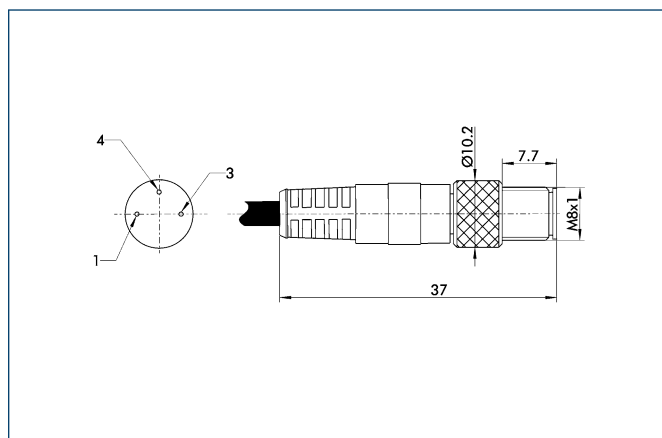
Description	IN 80-S-M8	IN 80-S-M12	INK 80-S	IN 80-O-M8	IN 80-O-M12	INK 80-O
ID	0301478	0301578	0301550	0301488	0301588	0301551
Switching function	Closer	Closer	Closer	Opener	Opener	Opener
Switching distance [mm]	1.5	1.5	1.5	1.5	1.5	1.5
Switching hysteresis from the nominal switching distance	< 15%	< 15%	< 15%	< 15%	< 15%	< 15%
Type of switching	PNP	PNP	PNP	PNP	PNP	PNP
Cable length [cm]	30	30	200	30	30	200
Cable connector/cable end	M8	M12	open wires	M8	M12	open wires
Type of voltage	DC	DC	DC	DC	DC	DC
Nominal voltage [V]	24	24	24	24	24	24
Min. voltage [V]	10	10	10	10	10	10
Max. voltage [V]	30	30	30	30	30	30
Power failure [V]	1.5	1.5	1.5	1.5	1.5	1.5
Max. switching current [A]	0.2	0.2	0.2	0.2	0.2	0.2
Min./max. ambient temperature [°C]	-25/70	-25/70	-25/70	-25/70	-25/70	-25/70
Max. switching frequency [Hz]	1000	1000	1000	1000	1000	1000
Tightness IP (sensor)	67	67	67	67	67	67
Tightness IP (sensor plugged)	67	67	67	67	67	67
LED display at the sensor	Yes	Yes	Yes	Yes	Yes	Yes
Cable diameter [mm]	3.5	3.5	3.5	3.5	3.5	3.5
Min. bending radius (dynamically) [mm]	35	35	35	35	35	35
Min. bending radius (statically) [mm]	17.5	17.5	17.5	17.5	17.5	17.5
Number of cores	3	3	3	3	3	3
Wire cross section [mm ²]	0.14	0.14	0.14	0.14	0.14	0.14

IN 80 sensor

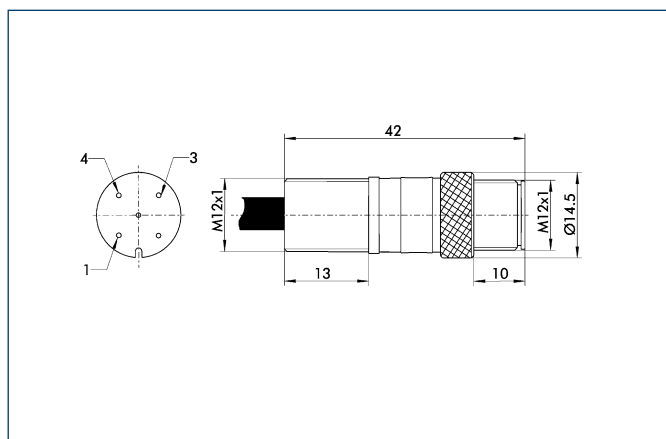


- 72 Active sensor surface
- 76 LED

M8 connector

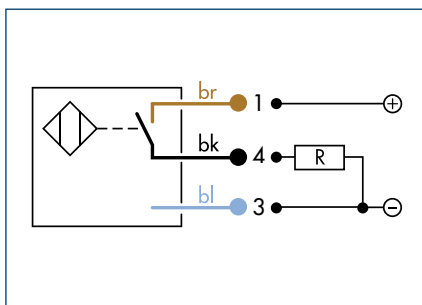


M12 connector

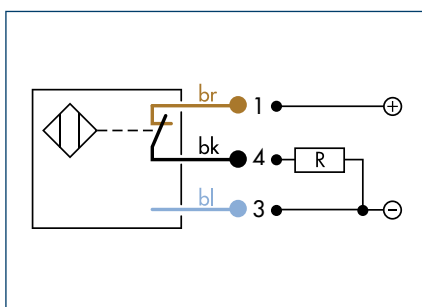




Wiring diagram closer



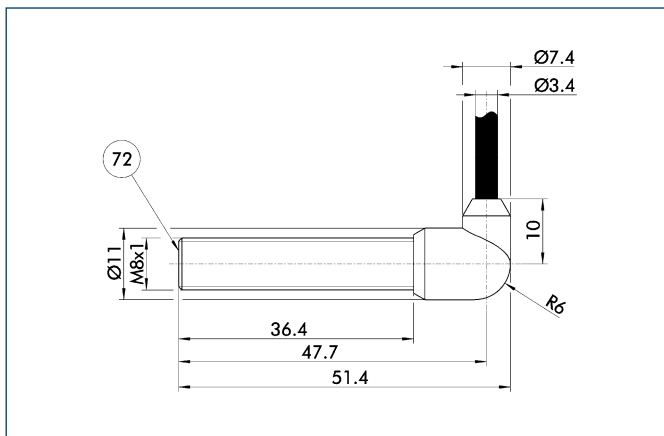
Wiring diagram opener



Technical data

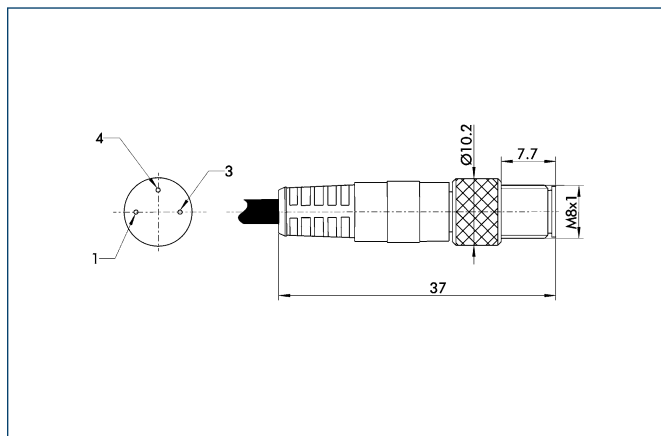
Description	IN 80-S-M12-SA	IN 80-S-M8-SA	INK 80-S-SA
ID	0301587	0301483	0301566
Switching function	Closer	Closer	Closer
Switching distance [mm]	1.5	1.5	1.5
Switching hysteresis from the nominal switching distance	< 15%	< 15%	< 15%
Type of switching	PNP	PNP	PNP
Cable length [cm]	30	30	200
Cable connector/cable end	M12	M8	open wires
Type of voltage	DC	DC	DC
Nominal voltage [V]	24	24	24
Min. voltage [V]	10	10	10
Max. voltage [V]	30	30	30
Power failure [V]	1.5	1.5	1.5
Max. switching current [A]	0.2	0.2	0.2
Min./max. ambient temperature [°C]	-25/70	-25/70	-25/70
Max. switching frequency [Hz]	1000	1000	1000
Tightness IP (sensor)	67	67	67
Tightness IP (sensor plugged)	67	67	67
LED display at the sensor	Yes	Yes	Yes
Cable diameter [mm]	3.5	3.5	3.5
Min. bending radius (dynamically) [mm]	35	35	35
Min. bending radius (statically) [mm]	17.5	17.5	17.5
Number of cores	3	3	3
Wire cross section [mm ²]	0.14	0.14	0.14

IN 80-SA sensor

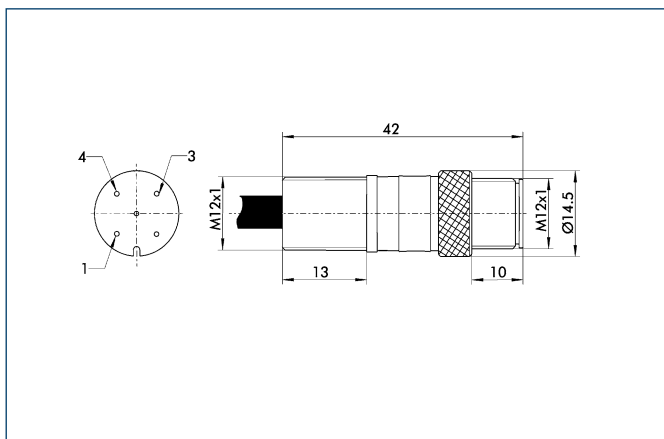


72 Active sensor surface

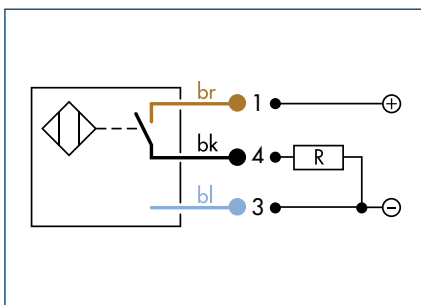
M8 connector



M12 connector



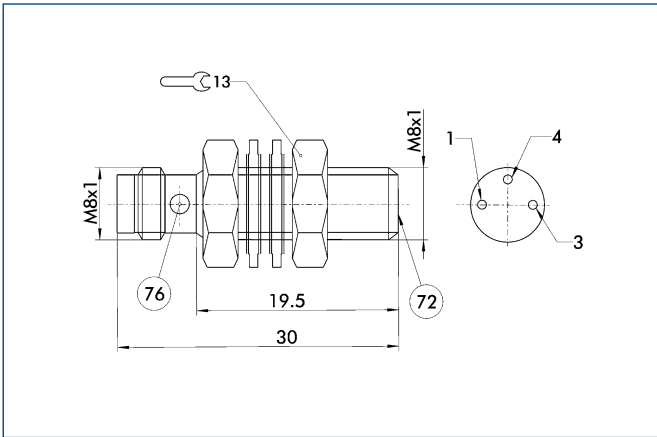
Wiring diagram closer



Technical data

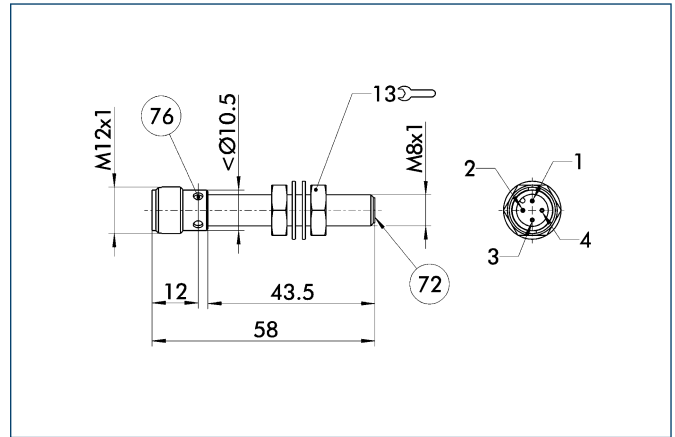
Description	IN-B 80-S-M12	IN-C 80-S-M8	IN 80-SL-M12	INK 80-SL
ID	0301479	0301475	0301529	0301579
Switching function	Closer	Closer	Closer	Closer
Switching distance [mm]	1.5	1.5	3	3
Switching hysteresis from the nominal switching distance	< 15%	< 15%	< 15%	< 15%
Type of switching	PNP	PNP	PNP	PNP
Cable length [cm]			30	200
Cable connector/cable end	M12	M8	M12	open wires
Type of voltage	DC	DC	DC	DC
Nominal voltage [V]	24	24	24	24
Min. voltage [V]	10	10	10	10
Max. voltage [V]	30	30	30	30
Power failure [V]	2.5	2.5	2.5	2.5
Max. switching current [A]	0.2	0.1	0.2	0.2
Min./max. ambient temperature [°C]	-25/70	-25/70	-25/70	-25/70
Max. switching frequency [Hz]	1500	3000	1000	1000
Tightness IP (sensor)	68	68	67	67
Tightness IP (sensor plugged)	68	68	67	67
LED display at the sensor	Yes	Yes	Yes	Yes
Cable diameter [mm]	3.5	3.5	3.5	3.5
Min. bending radius (dynamically) [mm]	35	35	35	35
Min. bending radius (statically) [mm]	17.5	17.5	17.5	17.5
Number of cores	3	3	3	3
Wire cross section [mm ²]	0.14	0.14	0.14	0.14

IN-C 80-S-M8 sensor



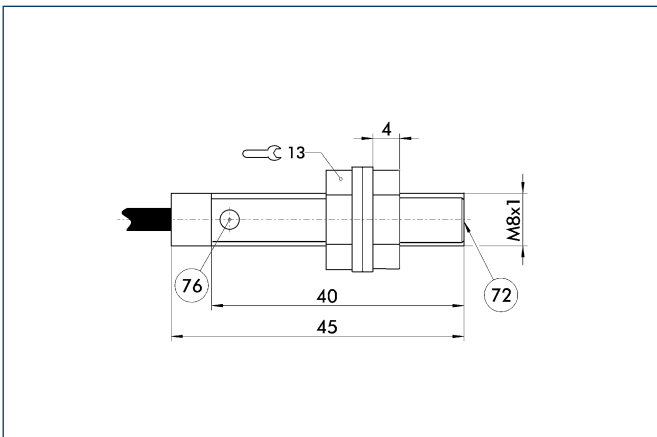
- ⑦② Active sensor surface
- ⑦⑥ LED

IN-B 80-S-M12 sensor



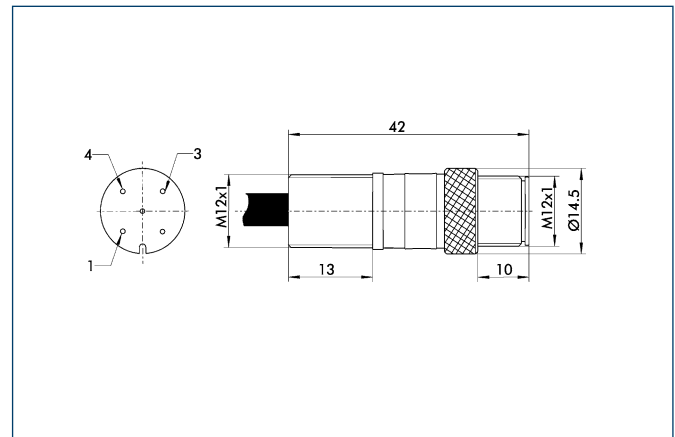
- ⑦② Active sensor surface
- ⑦⑥ LED

IN 80-SL sensor

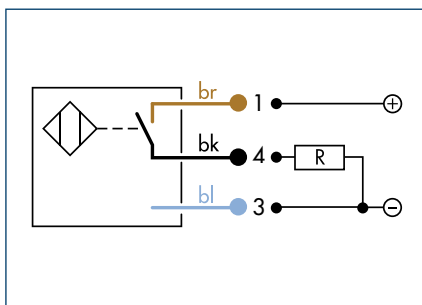


- ⑦② Active sensor surface
- ⑦⑥ LED

M12 connector



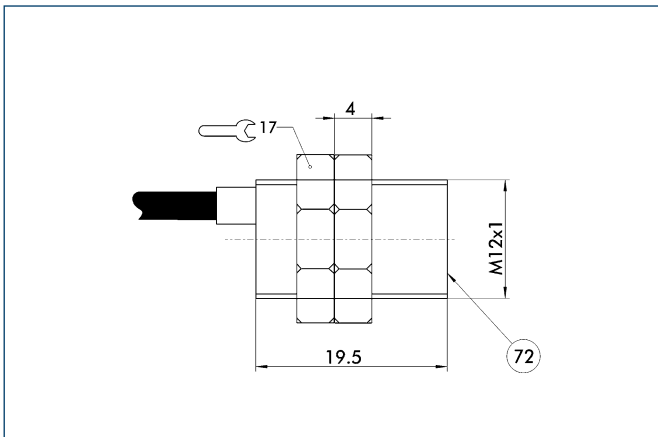
Wiring diagram closer



Technical data

Description	IN 120-S-M12	IN 120-S
ID	0301592	0301562
Switching function	Closer	Closer
Switching distance [mm]	2	2
Switching hysteresis from the nominal switching distance	< 15%	< 15%
Type of switching	PNP	PNP
Cable length [cm]	30	200
Cable connector/cable end	M12	open wires
Type of voltage	DC	DC
Nominal voltage [V]	24	24
Min. voltage [V]	10	10
Max. voltage [V]	30	30
Power failure [V]	1.5	1.5
Max. switching current [A]	0.2	0.2
Min./max. ambient temperature [°C]	-25/70	-25/70
Max. switching frequency [Hz]	1000	1000
Tightness IP (sensor)	67	67
Tightness IP (sensor plugged)	67	67
LED display at the sensor	No	No
Cable diameter [mm]	3.5	3.5
Min. bending radius (dynamically) [mm]	35	35
Min. bending radius (statically) [mm]	17.5	17.5
Number of cores	3	3
Wire cross section [mm ²]	0.14	0.14

IN 120-S sensor



(72) Active sensor surface

M12 connector

